

found to have adequate knowledge and practice. Significant associations were noted for knowledge-practice groups with parent's age, education level, and family income ( $p < 0.05$ ). **CONCLUSIONS:** Understanding parents' knowledge and practice is an important factor in order to improve immunization uptake and timeliness. Educational interventions targeting parents with inadequate knowledge and practice about childhood immunization are needed.

#### PIH9

##### PREVALENCE AND PREDICTOR OF ANTIDEPRESSANTS USE DURING PREGNANCY IN THE US: AN NHANES STUDY

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**OBJECTIVES:** Women of childbearing age are more likely to suffer from depression and anxiety disorders. Maternal depression has been associated with adverse birth outcomes such as preterm delivery, low birth weight/small for gestational age, etc. The objectives of this study are (i) to determine the prevalence of antidepressant utilization in pregnant women (ii) to identify factors associated with the use of antidepressants during pregnancy. **METHODS:** We used data of 1428 United States women (age  $\geq 20$  years) who participated in the National Health and Nutrition Examination Survey (NHANES) from 2001 to 2012 (this is a cross-sectional health examination survey of the US population) and who were known to be pregnant at the time of the interview. Antidepressant utilization was assessed as reported by the study participants. Logistic regression models were used to identify factors associated with receiving an antidepressant during pregnancy. **RESULTS:** The prevalence of antidepressant use increased from 3.1 % to 9.7% in from 2001 to 2012 ( $p < 0.01$ ). Among those women who reported using antidepressants 15.45% had a diagnosis of clinical depression. Selective Serotonin Reuptake Inhibitors (SSRIs) were found to be the most commonly prescribed class of antidepressants (78.9%). Race was found to be a strong predictor of antidepressant use, Non-Hispanic White women were found to be more likely to be on antidepressants as compared to other races (OR = 3.1; 95%CI 1.95 – 4.56). The other factors found to be significantly associated with antidepressant use were age, diagnosis of depression, and education. **CONCLUSIONS:** Utilization of antidepressants during pregnancy has increased in the past decade, specially the use of SSRIs. The prescription of antidepressants varies significantly by age, race, and education. Although an increase in antidepressant use potentially signifies treatment of maternal depression, it stresses the need for clinical guidelines to treat maternal depression.

#### PIH10

##### DEVELOPMENT, VALIDATION, AND ANALYSIS OF A LINEAR REGRESSION MODEL PREDICTING CHILD'S BIRTHWEIGHT FROM MOTHER'S RACE, EDUCATION LEVEL, SMOKING STATUS, AND GESTATION AGE

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**OBJECTIVES:** Birthweight is a strong predictor of an individual baby's survival as well as overall infant mortality and low birthweight is associated with adverse health outcomes. This study utilized a linear regression model to predict a child's birthweight from the mother's race, education level, smoking status, and gestation age. **METHODS:** A publically available dataset of births in Philadelphia, PA from 1990 had 1,115 observations on five variables: mother's race, years of education, and smoking status during pregnancy; and gestational age (weeks) and birthweight (gms). The dataset was randomly divided into 2 subsets for model development and validation. The model was developed against the development dataset, verified against the validation dataset, and refitted to the entire sample to generate the final results. **RESULTS:** The final fitted model was:  $Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_1X_3 + b_5X_4$  ( $R^2 = 0.5337$ ,  $R_{adj} = 0.5316$ ,  $p < 0.0001$ ); where  $X_1$  indicates the mother's race was black,  $X_2$  indicates the mother smoked during pregnancy, and  $X_3$  represents gestation age (centered). Mother's education was dropped from the model due to lack of significance. Negative effects were observed for race ( $b_1 = -227.22$ , 95% CI: [-287.01, -167.43],  $p < 0.0001$ ) and smoking ( $b_2 = -316.59$ , 95% CI: [-414.16, -219.02],  $p < 0.0001$ ), while a positive effect was observed for the interaction of race and smoking ( $b_4 = 210.31$ , 95% CI: [86.80, 333.82],  $p = 0.009$ ). With respect to gestation age, the positive linear effect ( $b_3 = 144.90$ , 95% CI: [129.63, 160.16],  $p < 0.0001$ ) was slightly offset by a small negative quadratic effect ( $b_5 = -1.47$ , 95% CI: [-2.84, -0.10],  $p = 0.0351$ ). **CONCLUSIONS:** The results indicate that premature birth, mother's race, and smoking during pregnancy are risk factors for lower birthweight, but the combined effect of a black mother who smoked during pregnancy is sub-additive. Mother's education is not an independent risk factor, after controlling for these other factors.

#### PIH11

##### ASSOCIATION OF OUTDOOR AIR POLLUTION AND STILLBIRTH RISK IN ULAANBAATAR, MONGOLIA

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**OBJECTIVES:** There is an increasing trend of stillbirth in Mongolia for the last few years and Ulaanbaatar city is the 2nd most polluted city in the world by WHO. This study sought to determine the association of outdoor air pollution and risk of stillbirth. **METHODS:** This was a case-control study. The case group consisted of 909 stillbirths and the controls included 159 764 live births from singletons born in 2008–2013 in Ulaanbaatar. Air quality data between January 2007 and December 2013 was obtained. Association between air pollution and stillbirth was determined using Logit regression. Odds ratios were estimated per 10-ppb change for nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>) and for particulate matter with aerodynamic diameter  $\leq 10 \mu m$  (PM<sub>10</sub>), and 100-ppb change for carbon monoxide (CO) during different gestational periods. **RESULTS:** Average duration of gestation for stillbirths were 24.7 weeks whereas for live births average duration was 38.5 weeks ( $p < 0.0001$ ). 28.2% of stillbirths occurred in spring. Stillbirth risk increased in association with 10-ppb change for SO<sub>2</sub> in all trimesters (OR=1.01; CI 95% 0.99–1.03). Stillbirth risk also

increased in association with 10-ppb change for NO<sub>2</sub> in first-trimester (OR=1.01; CI 95% 0.96–1.07). 100-ppb change for CO during all trimesters of gestation increased risks of stillbirth (OR=1.01; CI 95% 0.98–1.04). There was an increased risk of stillbirths in association with 10-ppb change for PM<sub>10</sub> in first-trimester (OR=1.02; CI 95% 0.99–1.04). **CONCLUSIONS:** Exposure to outdoor air substances may increase the risk of stillbirth, and that the most susceptible time periods for exposure are during the first trimester of gestation.

#### PIH12

##### THE USE OF ANTIBIOTICS PROPHYLAXIS FOR INTRATHECAL BACLOFEN PUMP PLACEMENT IN PEDIATRICS PATIENTS

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**OBJECTIVES:** Infection rates associated with intrathecal baclofen pump (ITBP) procedures are 4.5–9%. Practice guidelines recommend appropriate administration of perioperative antimicrobial prophylaxis (cefazolin or vancomycin monotherapy) to reduce surgical infection, which is expected to decrease morbidity and mortality, and control duration/cost of care. This study explored the prevalence and specific antibiotic prophylaxis (AP) used in pediatric patients undergoing ITBP placement and factors associated with compliance of AP use. **METHODS:** Using Pediatrics Health Information System (PHIS), the study cohort comprised patients who had ITBP surgery (ICD-9 CM procedure code 86.06) within 3 days of admission, between 7/1/2004–12/31/2013, with minimum follow up 90 days. Exclusion criteria were prior infection, antibiotic use within 30 days of admission, and/or missing financial data. Chi-squared test and multivariate logistic regression were used to determine factors associated with compliance to AP administration in ITBP surgeries. Analyses used SAS@9.3 software. **RESULTS:** 1561 patients met inclusion criteria. 89.3% received AP; among those, 34.1% received at least dual coverage. The most frequently used antibiotics in surgery were cefazolin (N=882, 62.3%), vancomycin (345, 24.4%) as per guideline recommendations. Documented AP administration compliance rates were 74.3%, 64.8%, 70.7%, and 58.4% in West, South, Midwest, and Northeast regions, respectively. Compared to surgeries in the Northeast, procedures in the West (Odds Ratio, 2.1, 95% confidence interval 1.4–3.0,  $p < 0.001$ ) and Midwest (1.7, 1.2–2.4,  $p = 0.003$ ) were more likely to have AP compliance. Black (0.71, 0.52–0.96,  $p = 0.025$ ) and Hispanic (0.62, 0.45–0.86,  $p = 0.005$ ) patients were less likely to have AP compliance in surgeries than White patients. There were no significant differences of compliance by age, sex, insurance, and diagnosis. **CONCLUSIONS:** Close to 70% of ITBP surgeries show compliance with perioperative AP guidelines. Geographic, race, and practice variation in ITBP antibiotic prophylaxis were found in this study. Future research is warranted to examine these variations and resultant impact on surgical infection and outcomes.

#### INDIVIDUAL'S HEALTH – Cost Studies

#### PIH13

##### EXAMINING THE FRACTURE-RELATED COST BURDEN AND HEALTHCARE RESOURCE UTILIZATION POST-MENOPAUSE IN THE U.S. MEDICARE POPULATION

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**OBJECTIVES:** To examine the fracture-related cost burden and healthcare resource utilization among post-menopausal women in the U.S. Medicare population. **METHODS:** Post-menopausal women were identified using International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) diagnosis codes from the U.S. Medicare claims dataset from 01JAN2008 through 31DEC2012. The first fracture diagnosis date was designated as the index date. One year of continuous health plan enrollment was required for all patients pre- and post-index date. A comparison group was created, identifying patients without fractures of the same age, region, gender and index year and were matched to case patients based on baseline Charlson Comorbidity Index scores. A randomly chosen index date for the comparison group reduced selection bias. Healthcare costs and utilizations were compared using 1:1 propensity score matching (PSM). **RESULTS:** Before matching ( $n = 182,124$ ), patients with fractures were more likely to be white (92.6% vs. 85.8%), reside in the Northeast U.S. region (19.4% vs. 16.4%), and have diagnosis of depression (18.0% vs. 13.0%) and chronic obstructive pulmonary disease (26.3% vs. 23.3%). After 1:1 PSM, 65,549 patients were included in each cohort and baseline characteristics were well-balanced. Significantly more post-menopausal women with fractures had inpatient admission (42.3% vs. 8.6%,  $p < 0.0001$ ), outpatient (80.3% vs. 48.7%,  $p < 0.0001$ ), home health agency (31.2% vs. 6.9%,  $p < 0.0001$ ) skilled nursing facility (SNF) (25.7% vs. 2.72%,  $p < 0.0001$ ) and hospice admission (1.4% vs. 1.0%,  $p < 0.0001$ ) claims. Higher healthcare resource utilization translated to higher costs for post-menopausal fracture patients, including inpatient (\$7,869 vs. \$1,203,  $p < 0.0001$ ), outpatient (\$1,928 vs. \$622,  $p < 0.0001$ ), SNF (\$5,980 vs. \$437,  $p < 0.0001$ ), hospice (\$338 vs. \$244,  $p < 0.0001$ ), pharmacy (\$1,052 vs. \$829,  $p < 0.0001$ ) and total costs (\$23,097 vs. \$5,247,  $p < 0.0001$ ), than for those in the comparison cohort. **CONCLUSIONS:** Post-menopausal women with fractures in the U.S. Medicare population had higher healthcare resource utilization and expenditures than those without fractures.

#### PIH14

##### ADMINISTRATION COST OF PEDIATRIC VACCINATION: A FOCUSED LITERATURE REVIEW

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**OBJECTIVES:** To understand the cost range for pediatric vaccine administration across different countries and to describe the costing methodologies employed